

Steven M. Hoffberg

From: Steven M. Hoffberg [steve@hoffberg.org]
Sent: Thursday, November 18, 2004 12:18 PM
To: 'Nguyen, Nga'
Subject: 09/599,163 token.c

```

/* -----
 * TVS Token handling
 * Copyright (c) 1995 Newshare Corporation
 * -----
 */

#define TOKEN_IMPLEMENTATION          /* leave this at the top */

#include <stdio.h>
#include <stdlib.h>
#include <strings.h>
#include <unistd.h>
#include <errno.h>
#include <ctype.h>
#include <time.h>
#include <sys/types.h>
#include <netinet/in.h>          /* to swap byte order */

#include "tvs_util.h"          /* some tvs externals */
extern int tvs_sizeof_profile();

/* token "flags" data structure
 * (future use -- currently just a "magic" data structure)
 */

struct token_flags {
    unsigned int version: 4;
    unsigned int unused: 14;
    unsigned int never: 14;
};

typedef struct token_flags *TOKEN_FLAGS;

union tf_bytes {
    struct token_flags tfs;
    char tfc[sizeof(struct token_flags)];
};

/* token data structure */

struct user_token {

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    unsigned short    token_version;
    unsigned short    server_id;
    unsigned int      profile[6];      /* DAMAGE CONTROL !!!!!!!!!!!!! */
    struct token_flags t_flags;
    time_t            st_time;
};

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typedef struct user_token *TVS_TOKEN;

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union tk_bytes {
    struct user_token toks;
    char tokc[sizeof(struct user_token)];
};

```

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/*
 * I have to include this AFTER my internal definitions, not before!!!
 */

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#include "token.h"

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#define PUBLIC
#define PRIVATE static

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#define TVS_TOKEN_VERSION 1
#define TOKEN_FLAG_VERSION 1

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#define MALLOC(x) malloc(x)

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/* -----
 * generate a new token data structure
 * -----
 */

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PRIVATE TVS_TOKEN
tvss_new_token()
{
    TVS_TOKEN new;

    new = (TVS_TOKEN) malloc(sizeof(struct user_token));
    if (!new) return (TVS_TOKEN) NULL;

    memset((char *)new, 0, sizeof(struct user_token));

    new->token_version = TVS_TOKEN_VERSION;
    return new;
}

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/* -----
 * create a new (unencoded) token-flags data structure
 * -----

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*/

#define TOKEN_MAGIC_NEVER 0x1555
#define TOKEN_MAGIC_UNUSED 0x2aaa

PUBLIC TOKEN_FLAGS
tvss_new_flags()
{
    TOKEN_FLAGS new;

    new = (TOKEN_FLAGS) malloc(sizeof(struct token_flags));
    if (!new) return (TOKEN_FLAGS) NULL;

    memset((char *)new, 0, sizeof(struct token_flags));

    new->version = TOKEN_FLAG_VERSION;
    new->never   = TOKEN_MAGIC_NEVER;
    new->unused  = TOKEN_MAGIC_UNUSED;

    return new;
}

/* -----
 * create AND FILL a new (unencoded) token data structure
 * -----
 */

PUBLIC TVS_TOKEN
tvss_make_token(unsigned short s_id, TVS_PROFILE prof, TOKEN_FLAGS flags)
{
    TVS_TOKEN new;

    new = tvss_new_token();

    tvss_set_profile(new, prof);
    tvss_set_server_id(new, s_id);
    tvss_set_flags(new, flags);
    tvss_set_sttime(new);

    return new;
}

/* -----
 * insert the user profile
 * -----
 */

PUBLIC void
tvss_set_profile(TVS_TOKEN token, TVS_PROFILE prof)
{
    memcpy(token->profile, prof, tvs_sizeof_profile());
}

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}

/* -----
 * retrieve the token's user profile
 * -----
 */

PUBLIC int
tvss_get_profile(TVS_TOKEN token, TVS_PROFILE prof)
{
    memcpy(prof, token->profile, tvs_sizeof_profile());
    return 1;
}

/* -----
 * set the token's server id
 * -----
 */

PUBLIC void
tvss_set_server_id(TVS_TOKEN token, unsigned short sid)
{
    token->server_id = sid;
}

/* -----
 * get the token's server id
 * -----
 */

PUBLIC unsigned short
tvss_get_server_id(TVS_TOKEN token)
{
    return token->server_id;
}

/* -----
 * set the token's start time
 * -----
 */

PUBLIC void
tvss_set_stime(TVS_TOKEN token)
{
    token->st_time = htonl((long) time((time_t) NULL));
}

/* -----
 * get the token's start time
 * -----

```

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*/

PUBLIC time_t
tvss_get_sttime(TVS_TOKEN token)
{
    return ntohl(token->st_time);
}

/* -----
 * insert the token flags
 * -----
*/

PUBLIC void
tvss_set_flags(TVS_TOKEN token, TOKEN_FLAGS flags)
{
    memcpy((char *)&(token->t_flags), flags, sizeof(struct token_flags));
}

/* -----
 * retrieve the token's user profile
 * -----
*/

PUBLIC int
tvss_get_flags(TVS_TOKEN token, TOKEN_FLAGS flags)
{
    memcpy(flags, (char *)&(token->t_flags), sizeof(struct token_flags));
    return 1;
}

/* -----
 * tvss_token_fmt_is_valid - make sure we dont receive just barf!
 * -----
*/

PUBLIC int
tvss_token_fmt_is_valid(TVS_TOKEN token)
{
    if (token->token_version != TVS_TOKEN_VERSION) return 0;

    if (token->t_flags.version != TOKEN_FLAG_VERSION) return 0;
    if (token->t_flags.unused != TOKEN_MAGIC_UNUSED) return 0;
    if (token->t_flags.never != TOKEN_MAGIC_NEVER) return 0;

    return 1;
}

/* -----
 * encode it
 * -----

```

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*/

#define MAX_TOKEN_LENGTH 128

PUBLIC char *
tvss_encode_token(TVS_TOKEN token)
{
    char *string;
    int len = MAX_TOKEN_LENGTH;

    string = (char *) MALLOC(len);
    if (!string) return (char *) NULL;

    if (!tvss_encode((char *) token, sizeof(struct user_token), string, &len))
        return (char *) NULL;

    string[len] = '\0';
    return (char *)string;
}

/* -----
 * decode it
 * -----
 */

PUBLIC TVS_TOKEN
tvss_decode_token(char *string)
{
    int len;
    TVS_TOKEN token;

    len = sizeof(struct user_token);
    token = tvss_new_token();

    if (!tvss_decode(string, (char *) token, &len))
        return (TVS_TOKEN) NULL;

    return token;
}

```

Very truly yours,

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